

### ABSTRACT OF THE DISCLOSURE

An anastomosis occlusion device having a low-profile shaft assembly configured for insertion into the lumen of a vessel and a distal perfusion system adapted to be connected to the shaft assembly. The device includes an expandable region at the shaft assembly distal end with a sealing membrane that spans the expandable region, and a corresponding clamping member moveable toward the expandable region. Once inserted into the vessel lumen the expandable region is deployed from a first low-profile position into a second expanded position, and positioned at the target site of the anastomosis. Movement of the distal end of the clamping member, which remains located outside the vessel, against the expanded region creates a seal at the target site allowing a blood-free, graft site.